

## PATENT COOPERATION TREATY

## PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 16 MAY 2006

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Applicant's or agent's file reference <b>73460-78450</b>	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. <b>PCT/IB2005/050164</b>	International filing date (day/month/year) <b>14-01-2005</b>	Priority date (day/month/year) <b>19-01-2004</b>
International Patent Classification (IPC) or national classification and IPC <b>See Supplemental Box</b>		
Applicant <b>NORDIA INNOVATION AB ET AL</b>		

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 6 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
  - ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:
    - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

Date of submission of the demand <b>17-11-2005</b>	Date of completion of this report <b>21-04-2006</b>
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer  <b>Roland Landström/MN</b> Telephone No. +46 8 782 25 00

Form PCT/IPEA/409 (cover sheet) (April 2005)

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.

PCT/IB2005/050164

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Cover sheet**

**International patent classification (IPC)**

**H04Q 1/14 (2006.01)**

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB2005/050164

## Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into \_\_\_\_\_  
which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on
- (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*
- :

- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the claims:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- pages \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

- 3.
- ☐
- The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

- 4.
- ☐
- This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.:

PCT/IB2005/050164

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>1 - 17</u>	YES
	Claims		NO
Inventive step (IS)	Claims	<u>5 - 7, 12 - 16</u>	YES
	Claims	<u>1 - 4, 8 - 11, 17</u>	NO
Industrial applicability (IA)	Claims	<u>1 - 17</u>	YES
	Claims		NO

## 2. Citations and explanations (Rule 70.7)

The invention relates to an apparatus and a method for automatic cross-connecting including a switch matrix with sliding contacts and motor drive means for moving the contacts.

The purpose of the invention is to improve the positioning of the contacts.

Reference is made to the following documents:

D1: US 5994862 A  
D2: US 6138345 A  
D3: US 4817134 A  
D4: WO 0239473 A1

Document D1 (column 1, line 1 - column 21, line 51, claim 1, figures 1 - 22, abstract) shows an apparatus and a method for automatic cross-connecting including a switch matrix (220, 230) having holes (12) for contact pins (14) and position marks (221, 231). A motor driven head (301) inserts a contact pin (14) in a selected hole (12). A detector (302) attached to the head (301) detects the position marks (221, 231) and thereby the position of the holes (12). The motors (304, 307) are controlled in dependence on the detected position. Several switch matrices (210, 220, 230) are arranged in parallel (column 9, lines 19 - 30, figure 6).

.../...

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

Document D2 (column 11, line 38 - column 20, line 60, figures 9 - 26, abstract) shows an apparatus and a method for automatic cross-connecting including a switch matrix (106, 152, 162) having holes for contact pins (40). A motor driven pin holder (50) inserts a contact pin (40) in a selected hole. The motors are controlled in dependence on a detector (60) that detects the position of the holes. A plurality of switch matrices (100) are stacked (column 11, lines 48 - 54, figure 9).

Document D3 (column 1, line 60 - column 5, line 23, figures 1 - 6, abstract) shows an apparatus and a method for automatic cross-connecting including a switch matrix (11, 19) with sliding contact sledges (24, 23a, 23b) and motor driven screws (26) for moving the contacts.

Document D4 (page 2, line 13 - page 8, line 23, figures 1 - 10) discloses an apparatus and a method for automatic cross-connecting of incoming lines with outgoing lines including a switch and a motor (14) that moves a contact element along contact points. Information from a positioning signal line (Pc) is used to keep track of the actual position of the contact element in relation to the contact points. The position signal enables a control of the actual position of a manoeuvring unit (40) at any time.

Document D3 is considered to represent the closest prior art.

The invention according to claims 1 and 11 differs from the apparatus and method in document D3 essentially in that position detection means detect the position of the contact and control the motor. Due to these features, an accurate positioning is achieved.

Consequently, with the background of document D3, the problem is how to improve the accuracy of the positioning of the contact.

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## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

A solution to the problem of improving the accuracy of the positioning of the movable contact in a cross-connect is known from each of documents D1, D2 or D4 (above). Furthermore, the use of position detection means to accurately control a positioning apparatus is common general knowledge.

Using the prior art of document D3 as a starting point, a person skilled in the art trying to solve the problem stated above would, with the teachings of D1, D2 or D4, arrive at the apparatus and method of claims 1 and 11.

Since documents D1 - D4 relate to the same technical field and no unexpected effect is obtained, the combination of what is known from D3 and one of documents D1, D2 or D4 is considered obvious for a person skilled in the art.

Therefore, the invention defined in claims 1 and 11 is novel but does not involve an inventive step. Claims 1 and 11 fulfil the requirement of industrial applicability.

In claims 2 - 4, 8 - 10 and 17 slight constructional changes are suggested that are obvious to a person skilled in the art, cf. also documents D1 - D4. Consequently, the invention claimed in claims 2 - 4, 8 - 10 and 17 is novel but lacks an inventive step. Claims 2 - 4, 8 - 10 and 17 fulfil the requirement of industrial applicability.

The invention claimed in claims 5 - 7 and 12 - 16 is novel and involves an inventive step. Claims 5 - 7 and 12 - 16 fulfil the requirement of industrial applicability.

To sum up, the invention claimed in claims 1 - 4, 8 - 11 and 17 is novel but lacks an inventive step and the invention claimed in claims 5 - 7 and 12 - 16 is novel and involves an inventive step. All the claims fulfil the requirement of industrial applicability.

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

REC'D 9 APR 2005

WIPO

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## PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

ALBIHNS STOCKHOLM AB  
Linnégatan 2, P.O. BOX 558/  
114 85 STOCKHOLM

Date of mailing  
(day/month/year)

22-01-2005

Applicant's or agent's file reference

73460-78435

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/IB 2005/050164

International filing date (day/month/year)

14-01-2005

Priority date (day/month/year)

19-01-2004

International Patent Classification (IPC) or both national classification and IPC

H04Q1/14

Applicant

NORDIA INNOVATION AB et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further opinions, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/SE

Patent- och registreringsverket

Box 5055

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Authorized officer

Roland Landström /LR

Telephone No. +46 8 782 25 00

Form PCT/ISA/237 (cover sheet) (January 2004)

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/IB 2005/050164

**Box No. I**      **Basis of this opinion**

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language, \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:



WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/IB 2005/050164

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1 - 17	YES
	Claims		NO
Inventive step (IS)	Claims	5 - 7, 12 - 16	YES
	Claims	1 - 4, 8 - 11, 17	NO
Industrial applicability (IA)	Claims	1 - 17	YES
	Claims		NO

2. Citations and explanations:

The invention relates to an apparatus and a method for automatic cross-connecting including a switch matrix with sliding contacts and motor drive means for moving the contacts.

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/IB 2005/050164

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/IB 2005/050164

Supplemental Box

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Continuation of BOX V

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Since documents D1 - D4 relate to the same technical field and no unexpected effect is obtained, the combination of what is known from D3 and one of documents D1, D2 or D4 is considered obvious for a person skilled in the art.

Therefore, the invention defined in claims 1 and 11 is novel but does not involve an inventive step. Claims 1 and 11 fulfil the requirement of industrial applicability.

In claims 2 - 4, 8 - 10 and 17 slight constructional changes are suggested that are obvious to a person skilled in the art, cf. also documents D1 - D4. Consequently, the invention claimed in claims 2 - 4, 8 - 10 and 17 is novel but lacks an inventive step. Claims 2 - 4, 8 - 10 and 17 fulfil the requirement of industrial applicability.

The invention claimed in claims 5 - 7 and 12 - 16 is novel and involves an inventive step. Claims 5 - 7 and 12 - 16 fulfil the requirement of industrial applicability.

To sum up, the invention claimed in claims 1 - 4, 8 - 11 and 17 is novel but lacks an inventive step and the invention claimed in claims 5 - 7 and 12 - 16 is novel and involves an inventive step. All the claims fulfil the requirement of industrial applicability.